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d) depositing a metal on the patterned dielectric layer after exposing the dielectric layer to the first plasma and the second plasma.

### REMARKS

Claims 1, 3-4, 6, 8-14, and 17-33 are pending in the application and stand rejected. Applicants have amended claims 29 and 30 for reasons discussed below. These amendments are not directed to the patentability of the claims. Please reconsider the claims pending in the application for reasons discussed below.

Claims 29-30 stand objected to or rejected under 35 U.S.C. § 112, first paragraph. The Examiner states that the phrases "more than about" and "less than about" are contradictory because "about" can be either greater than or less than the claimed value. Applicants have amended claims 29 and 30 to expedite prosecution. However, Applicants respectfully disagree with the Examiner's position that the claim language is contradictory. The phrases "more than about" and "less than about" are clearly understood in light of the specification, which renders the phrases neither indefinite nor contradictory. *See, W.L. Gore & Assoc. V Garlock, Inc.*, 220 USPQ at 316. Withdrawal of the objection/rejection is respectfully requested.

Claims 1, 3-4, 6, 8-14, and 17-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Yoo et al.* (U.S. Patent No. 5,203,957) in view of *Zhao et al.* (U.S. Patent No. 5,660,682). The Examiner states that *Yoo et al.* teaches two plasma etching steps consisting of: (1) a first plasma of argon and (2) a second plasma of helium and a reactive gas such as CF<sub>4</sub> or CF<sub>3</sub>H. The Examiner states that *Zhao et al.* teaches an argon plus hydrogen plasma. The Examiner, therefore, asserts that it would have been obvious to one of ordinary skill in the art that "hydrogen was a reactive gas that could have been used equivalently in the process of *Yoo et al.* ... because it was shown to produce like effects in analogous situations and configurations".

Applicants respectfully traverse the rejection on grounds that the Examiner has not established a case of *prima facie* obviousness. The mere recitation of a

combination of references does not amount to particularly identifying a suggestion, teaching, or a motivation to combine the references. (See, M.P.E.P. § 2143.) The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in the applicants' disclosure. See M.P.E.P. § 2143, citing *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). Still further, the examiner must *particularly* identify any suggestion, teaching or motivation from within the references to combine the references. See *In Re Dembiczak*, 50 USPQ2d 1614 (Fed. Cir. 1999).

Here, the Examiner stated that it would have been obvious to use hydrogen "because it was shown to produce like effects in analogous situations and configurations". However, there is no evidence of record to support the Examiner's assertion. The Examiner is kindly reminded that even though references can be combined or modified, this is not sufficient to establish *prima facie* obviousness. See M.P.E.P. § 2143.01.

*Yoo et al.* teaches an argon sputtering process to smooth corners formed within a feature followed by a "soft-etching" process of a carbon tetrafluoride/helium mixture to decrease contact resistance for a nonsilicided device. (See, *Yoo et al.* at col. 4, line 50 through col. 5, line 13.) *Yoo et al.* also teaches that the soft etching plasma is not needed for silicided devices, which teaches away from a two-step process recited in the present claims. (See, *Yoo et al.* at col. 5, line 60.) *Zhao et al.* discloses removing oxides from a silicon substrate by forming a plasma of argon and hydrogen.

The Examiner has failed to set forth that the references can be combined to motivate or suggest cleaning a patterned dielectric layer in a processing chamber with a first plasma comprising predominantly argon and cleaning the patterned dielectric layer in the processing chamber with a second plasma consisting essentially of hydrogen and helium, as recited in claims 1, 6, 14, 33, and those dependent therefrom. A combination of the references also does not motivate or suggest cleaning the patterned dielectric layer in a processing chamber with an argon plasma and cleaning the patterned dielectric layer in the processing chamber with a hydrogen plasma, as recited in claim 24 and those dependent therefrom. In fact, none of the references motivate or suggest a step comprising hydrogen and helium as recited in every pending claim. For at least

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these reasons, Applicants respectfully request withdrawal of the rejection and allowance of the claims.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this office action.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the claimed invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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## APPENDIX

29. (Amended) The method of claim 24, wherein the hydrogen plasma comprises [more than] about 5% hydrogen or more by number of atoms.
30. (Amended) The method of claim 24, wherein the hydrogen plasma comprises [less than] about 95% helium or less by number of atoms.